State of California
Business, Transportation and Housing Agency
Department of Transportation

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POLICY MATTERS
Life-Cycle Costs for All Surface Modes

Information Item

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EXAMINATION OF LIFE-CYCLE COSTS FOR ALL SURFACE MODES

CAL - B/C - Caltrans' Life-Cycle Benefit/Cost Evaluation Model

Both federal and state law and regulations require cost effectiveness or benefit-cost evaluation for proposed transportation improvement projects. To meet such requirements, Caltrans developed, and has recently updated, a life-cycle benefit/cost analysis model (CAL-B/C). All state highway and intercity public transit projects proposed for the STIP are evaluated using this model. Cal-B/C is also used for screening project alternatives and for value engineering purposes.

The CAL-B/C model provides a user-friendly methodology that simplifies benefit-cost evaluation of highway and public transit investment projects. The model is set up in Excel spreadsheet format for ease of distribution and use. It is designed to *estimate Travel Time (or Delay) Savings, Traffic Accident Cost Savings (or Safety Benefits), Vehicle Operating Cost Savings, and Vehicle Emission Costs (optional)* over a 20-year life of a project. These project benefits are then compared to the total project costs (support, R/W, construction, maintenance, operations, etc.) to estimate some measurement of investment efficiency such as *"Benefit-Cost Ratio", "Net Present Value", "the Internal Rate of Return",* and *"Payback Period".*

CAL-B/C is a multimodal transportation investment evaluation model. It can analyze specific types of highway projects (such as lane additions, HOV lanes, passing lanes, interchange projects, etc.), as well as three types of public transit projects (passenger rail, light rail, and bus transit). Public transit projects are analyzed based on the project's total life-cycle costs and benefits. Life-cycle costs include initial capital and all future maintenance, rehabilitation and operating costs. Benefits attributed to public transit investments are measured mainly in terms of anticipated improvements in traffic delays, safety, and vehicle operating costs on parallel highway facilities.

The Office of Transportation Economics in the Transportation Planning Program conducts benefit-cost evaluation of proposed projects using CAL-B/C, based on the project information provided by the District offices/modal programs.

CAL-B/C is available on the Web at: www.dot.ca.gov/hq/tpp/OTE.htm.